

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for the biological treatment of effluents contaminated with impurities of municipal or industrial origin, ~~characterized in that it employs comprising the steps:~~

filling a single aeration tank (1) with high mass loading in which the raw or mechanically pretreated effluent is mixed, without prior settling, with a free microbial culture of the activated sludge type, growing in a lightly aerated medium, of the order of 0.1 to 0.2 Kg O₂/kg BOD₅ removed,

the applied organic loading being ~~equal to or greater than at least 2 Kg COD/Kg SM/day,~~ preferably equal to or greater than 4 Kg COD/Kg SM/day,

the hydraulic residence time of the raw effluent in the single aeration tank being between 30 and 90 minutes, ~~and preferably between 40 and 60 minutes, and in that, in said single aeration tank (1)~~

a portion of the dissolved carbon pollution and nearly the entire colloidal and particulate fraction of the effluent in the tank ~~are being~~ biosorbed by the activated sludge floc.

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the value of said mass loading is above 1.5 kg BOD₅/Kg SM/day, with a solid matter concentration between 0.5 and 2.5 gSM/l, giving rise to applied volumetric loadings above 3 kg BOD₅/m³/day.

3. (Previously presented) The method as claimed in claim 1, ~~characterized in that it is controlled together with control~~ at the anaerobiosis limit, by regulating the dissolved oxygen content to values between 0.1 and 1 mg/l.

4. (Currently Amended) The method as claimed in claim 1, ~~characterized in that the very wherein~~ high loading sludge has a suspended matter concentration of the order of 0.5 to 2.5 g/l, ~~and preferably between 0.6 and 1.5 g/l.~~

5. (Currently Amended) The method as claimed in claim 1, ~~characterized in that wherein a~~ regulation system is provided, by ~~adjustment of~~ adjusting the recirculation rate of the mixed liquor in the single aeration tank, this regulation being carried out so as to maintain the solid matter (suspended matter + biomass) within a preset range, ~~preferably between about 1.0 and 1.5 g/l, and it is selectively~~ carried out by the continuous measurement of the turbidity of the activated sludge or of the mixed liquor, this measurement being combined with a slaving of the recirculation or extraction rate of said mixed liquor.

6. (Currently Amended) The method as claimed in claim 1, ~~characterized in that it comprises a~~ together with regulation of the air input in the single tank ~~(1)~~, in order to maintain a low dissolved oxygen setpoint, of the order of 0.1 to 1 mg/l.

7. (Currently Amended) An installation for ~~putting into practice the method as claimed in claim 1, characterized in that it comprises~~ the biological treatment of effluents contaminated with impurities of municipal or industrial origin, comprising:

a free culture reactor ~~(1)~~ in which the free culture grows in an aerated medium, in which a portion of the dissolved carbon pollution and nearly the entire colloidal and particulate fraction of the effluent are biosorbed by ~~the~~ activated sludge floc, said reactor, which constitutes said single aeration tank, comprising continuous or intermittent air input means ~~(2)~~, ~~the~~ mixing energy being supplied mechanically ~~in this case,~~

means ~~(3)~~ for selective continuous measurement of the turbidity of the activated sludge or of the mixed liquor,

means for measuring the dissolved oxygen concentration, ~~of for~~ which the resulting data are processed by a servo system for slaving, ~~on the one hand,~~ the mixed liquor recirculation or extraction rate to maintain a constant solid matter content in said reactor ~~and, on the other hand,~~ while the air input ~~to maintain~~ maintains a low residual dissolved oxygen content in said reactor, an intermediate clarifier ~~(4)~~ which separates the sludge from the depolluted effluent, and

a sludge recirculation circuit ~~(5)~~ from the intermediate clarifier to the free culture reactor, wherein the recirculation (or extraction) rate ~~being~~ is slaved to the turbidity measurement in the reactor.

8. (Currently Amended) The installation as claimed in claim 7, ~~characterized in that~~ wherein the reactor ~~+~~ operating with very-high loading activated sludge ~~takes the form of~~ is an integral mixing aeration tank.

9. (Currently Amended) The installation as claimed in claim 7, ~~characterized in that~~ wherein the sensor ~~(3)~~ is positioned directly in the biological reactor ~~(1)~~.

10. (Currently Amended) The installation as claimed in claim 7, ~~characterized in that~~ wherein the sensor ~~(3)~~ is positioned at the outlet of said reactor, on ~~the~~ a water line supplying the associated clarifier ~~(4)~~.